

Removal Construction Criteria:

## Contaminated Vermiculite Soil Removal

- All visible vermiculite will be removed to a minimum depth of:
  - 18 inches from all disturbed locations (i.e., flowerbeds, gardens, etc...).
  - 12 inches from all other areas where LAA contamination exists.
- 12-foot poly-covered fence panels equipped with misting devices will be set up at any site that abuts a residence.

## Contaminated Vermiculite Removal From Attic/Wall

- A negative pressure enclosure will be constructed such that both the attic and exterior walls will be in the same NPE. The NPE will be tested for effectiveness using a smoke test.
- Items in the attic will be removed, wet wiped and HEPA vacuumed, and put back in when
- All HVAC and vent fans will be checked for contamination. The HVAC system will be cleaned and replaced if necessary.
- Wet wipe and HEPA vacuum interior after removal efforts are complete

## Dust Contamination Removal

- Wet wipe and HEPA vacuum the interior.

Removal Sampling Criteria

## Contaminated Vermiculite Soil Removal

- Prior to removal, supplemental soil sampling will be conducted to further delineate areas of excavation.
- Up to 5 background air samples will be collected, depending on the property layout.
- Up to 5 perimeter air samples, taken at the same locations as the background air samples, will be collected during the removal of contaminated soil. Perimeter air monitoring will begin at the start of intrusive work and continue until all contaminant is removed. If 2 or more structures are detected, work will stop and engineering controls will be reevaluated.
- Personal BZ air samples will be collected during the soil removal.

## Contaminated Vermiculite Removal From Attic/Wall

- Five (5) passive background air samples will be collected throughout the living space. A minimum of 4000 liters of air will be collected.
- Ambient air samples, taken at the same locations as the background air samples, will be collected in the living space during removal activities.
- Ambient air samples will be collected in order to monitor the NAFU and the makeup air of the NPE.
- Personal BZ air samples will be collected during the insulation removal in the attic/wall.

## Dust Contamination Removal

- Five (5) passive background air samples will be collected throughout the living space. A minimum of 4000 liters of air will be collected.

- Passive air samples will be collected during the wet wiping and HEPA vacuuming of the living space at the same locations as the background air samples. A minimum volume of 4000 Liters of air will be collected.
- Personal BZ air samples will be collected on the removal contractor's personnel during the wet wiping and HEPA vacuuming of the living space.

#### Clearance Criteria:

##### Contaminated Vermiculite Soil Removal

- When all visible vermiculite has been removed, soil confirmation samples will be collected and analyzed by PLM. The area will be deregulated if the PLM results are  $< 1\%$ . If the confirmation sample results are  $\geq 1\%$ , further excavation will be necessary.
- No air clearance samples will be collected before the exclusion zone is de-regulated.

##### Contaminated Vermiculite Removal From Attic/Wall

- Aggressive clearance air sampling in the attic and exterior NPE after the contaminant is removed and the space is encapsulated. A minimum of 1200 liter of air will be collected during clearance air sampling. Clearance criteria for the NPE will be ND.

##### Dust Contamination Removal

- If the ambient air samples collected on the last day of wet wiping and HEPA vacuuming activities are ND by AHERA, the living space is considered clean.
- If the ambient air samples collected on the last day of wet wiping and HEPA vacuuming activities show asbestos structures detected, aggressive air clearance samples will be collected. Aggressive air clearance sampling protocol will consist of placing 20" fans throughout the living space during the sample period. A minimum of 1200 liter of air will be collected during clearance air sampling. Clearance criteria in the living space will be less than the background level of asbestos in the air. If clearance cannot be attained, cleaning and sampling activities will be repeated.

Detected

ND